

CLAIMS

1. A polymer composition, comprising:
 - (a) a copolymer comprising polymerized ethylene monomer and C₃ to C₁₂ alpha-olefin comonomer, the copolymer having a CDBI of at least 70%, a melt index I_{2.16} of from 0.1 to 15 g/10 min, a density of from 0.910 to 0.940 g/cm³, a melt index ratio I_{21.6}/I_{2.16} of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5; and
 - (b) a silane grafting composition comprising a silane compound and a free radical initiator, the silane compound comprising an unsaturated group and a hydrolyzable group;
or reaction products thereof.
2. The polymer composition of claim 1, wherein the alpha-olefin comonomer comprises 1-butene, 1-hexene or 1-octene.
3. The polymer composition of claim 1, wherein the CDBI of the ethylene copolymer is at least 75%.
4. The polymer composition of claim 1, wherein the CDBI of the ethylene copolymer is at least 80%.
5. The polymer composition of claim 1, wherein the melt index of the ethylene copolymer is from 0.3 to 10 g/10 min.
6. The polymer composition of claim 1, wherein the density of the ethylene copolymer is from 0.916 to 0.935 g/cm³.
7. The polymer composition of claim 1, wherein the melt index ratio I_{21.6}/I_{2.16} of the ethylene copolymer is from 35 to 80.

8. The polymer composition of claim 1, wherein the Mw/Mn ratio is from 2.8 to 4.5.
- 5 9. The polymer composition of claim 1, wherein the unsaturated group of the silane compound comprises a vinyl, allyl, isopropenyl, butenyl, cyclohexenyl, or γ -(meth)acryloxy allyl group.
- 10 10. The polymer composition of claim 1, wherein the hydrolyzable group of the silane compound comprises a hydrocarbyloxy, hydrocarbonyloxy or hydrocarbylamino group.
11. The polymer composition of claim 1, wherein the silane compound is a vinyl trialkoxysilane and the free radical initiator is an organic peroxide.
- 15 12. The polymer composition of claim 1, further comprising a silanol condensation catalyst.
13. The polymer composition of claim 1, wherein the composition has a hot set value after 2 hours curing in 80°C water of 70% or less.
- 20 14. The polymer composition of claim 1, wherein the composition has a hot set value after 30 days of 50% or less.

15. A silane crosslinked polymer composition, comprising the reaction product of:
- 5 (a) a copolymer comprising polymerized ethylene monomer and C₃ to C₁₂ alpha-olefin comonomer, the copolymer having a CDBI of at least 70%, a melt index I_{2.16} of from 0.1 to 15 g/10 min, a density of from 0.910 to 0.940 g/cm³, a melt index ratio I_{21.6}/I_{2.16} of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5;
- 10 (b) a silane grafting composition comprising a silane compound and a free radical initiator, the silane compound comprising an unsaturated group and a hydrolyzable group; and
- (c) a silanol condensation catalyst.
16. The polymer composition of claim 15, wherein the alpha-olefin comonomer comprises 1-butene, 1-hexene or 1-octene.
- 15 17. The polymer composition of claim 15, wherein the CDBI of the ethylene copolymer is at least 75%.
18. The polymer composition of claim 15, wherein the CDBI of the ethylene copolymer is at least 80%.
- 20 19. The polymer composition of claim 15, wherein the melt index of the ethylene copolymer is from 0.3 to 10 g/10 min.
- 25 20. The polymer composition of claim 15, wherein the density of the ethylene copolymer is from 0.916 to 0.935 g/cm³.
21. The polymer composition of claim 15, wherein the melt index ratio I_{21.6}/I_{2.16} of the ethylene copolymer is from 35 to 80.
- 30 22. The polymer composition of claim 15, wherein the Mw/Mn ratio is from 2.8 to 4.5.

23. The polymer composition of claim 15, wherein the unsaturated group of the silane compound comprises a vinyl, allyl, isopropenyl, butenyl, cyclohexenyl, or γ -(meth)acryloxy allyl group.
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24. The polymer composition of claim 15, wherein the hydrolyzable group of the silane compound comprises a hydrocarbyloxy, hydrocarbonyloxy or hydrocarbylamino group.
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25. The polymer composition of claim 15, wherein the silane compound is a vinyl trialkoxysilane and the free radical initiator is an organic peroxide.
26. An electrical device comprising the polymer composition of any of claims 1 to 25.
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27. An electrical device comprising:
- (a) an electrical conductor; and
 - (b) a layer surrounding at least a portion of the electrical conductor, the layer comprising the reaction product of:
 - 20 (i) a copolymer comprising polymerized ethylene monomer and C_3 to C_{12} alpha-olefin comonomer, the copolymer having a CDBI of at least 70%, a melt index $I_{2.16}$ of from 0.1 to 15 g/10 min, a density of from 0.910 to 0.940 g/cm³, a melt index ratio $I_{21.6}/I_{2.16}$ of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5; and
 - 25 (ii) a silane grafting composition comprising a silane compound and a free radical initiator, the silane compound comprising an unsaturated group and a hydrolyzable group; and
 - 30 (iii) a silanol condensation catalyst.

28. The electrical device of claim 27, wherein the layer surrounding at least a portion of the conductor is an insulating layer.
29. The electrical device of claim 27, wherein the layer surrounding at least a portion of the conductor is a semiconducting layer.
30. The electrical device of claim 27, wherein the layer surrounding at least a portion of the conductor is an outer jacket layer.
31. The electrical device of any of claims 27-30, wherein the device is a power cable adapted to transport electricity at a voltage potential of less than or equal to 66 kV.
32. The electrical device of any of claims 27-30, wherein the device is a power cable adapted to transport electricity at a voltage potential of less than or equal to 35 kV.
33. The electrical device of any of claims 27-30, wherein the device is a power cable adapted to transport electricity at a voltage potential of less than or equal to 6 kV.
34. The electrical device of any of claims 27-30, wherein the device is a power cable adapted to transport electricity at a voltage potential of less than or equal to 1 kV.
35. The electrical device of any of claims 27-30, wherein the device is a telecommunications cable.
36. The electrical device of any of claims 27-30, wherein the device is a combined power/telecommunications cable.